



**DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY  
AFFAIRS (PERA)  
BOARD AND CODE ADMINISTRATION DIVISION  
NOTICE OF ACCEPTANCE (NOA)**

**MIAMI-DADE COUNTY  
PRODUCT CONTROL SECTION**  
11805 SW 26 Street, Room 208  
Miami, Florida 33175-2474  
T (786) 315-2590 F (786) 315-2599  
[www.miamidade.gov/pera/](http://www.miamidade.gov/pera/)

**Arrow United Industries  
450 Riverside Drive  
Wyalusing, PA 18853**

**SCOPE:**

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

**DESCRIPTION: Model EA-52 5" deep Aluminum Louver**

**APPROVAL DOCUMENT:** Drawing No. 1685, titled "EA-52 Impact Louver System", sheets 1 through 10 of 10, dated 07/23/2009, with revision A1 dated 11/08/2011, prepared by W. W. Schaefer Engineering & Consulting, P.A., signed and sealed by Warren. W. Schaefer, P.E., bearing the Miami-Dade County Product Control revision stamp with the Notice of Acceptance number and approval date by the Miami-Dade County Product Control Section.

**MISSILE IMPACT RATING: Large and Small Missile Impact Resistant**

**LABELING:** Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

**RENEWAL** of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

**TERMINATION** of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

**ADVERTISEMENT:** The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

**INSPECTION:** A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA # 09-1015.09 and consists of this page 1 and evidence page E-1, as well as approval document mentioned above.

The submitted documentation was reviewed by **Carlos M. Utrera, P.E.**



*[Signature]*  
01/13/2012

**NOA No. 11-1117.10  
Expiration Date: January 06, 2015  
Approval Date: January 19, 2012  
Page 1**

**NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED**

**A. DRAWINGS**

1. Drawing No. 1685, titled "EA-52 Impact Louver System", sheets 1 through 10 of 10, dated 07/23/2009, with revision A1 dated 11/08/2011, prepared by W. W. Schaefer Engineering & Consulting, P.A., signed and sealed by Warren W. Schaefer, P.E.

**B. TESTS "Submitted under NOA # 09-1015.09"**

1. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94  
2) Large Missile Impact Test per FBC, TAS 201-94  
3) Cyclic Wind Pressure Loading per FBC, TAS 203-94  
along with marked-up drawings and installation diagram, of "EA-52 Aluminum Louver Systems", prepared by Hurricane Test Laboratory, Inc., Report No. 0198-0305-09, dated 09/29/2009, signed and sealed by Vinu J. Abraham, P.E.
2. Test reports on: 1) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94  
2) Large Missile Impact Test per FBC, TAS 201-94  
3) Cyclic Wind Pressure Loading per FBC, TAS 203-94  
along with marked-up drawings and installation diagram, of "EA-52 Aluminum Louver Systems", prepared by Hurricane Test Laboratory, Inc., Report No. 0198-0715-09, dated 09/30/2009, signed and sealed by Vinu J. Abraham, P.E.

**C. CALCULATIONS "Submitted under NOA # 09-1015.09"**

1. Structural calculations prepared by W.W. Schaefer Engineering & Consulting, P.A., dated 10/06/2009, signed and sealed by Warren W. Schaefer, P.E.

**D. QUALITY ASSURANCE**

1. Miami-Dade Department of Permitting, Environment, and Regulatory Affairs (PERA)

**E. MATERIAL CERTIFICATIONS**

1. None.

**F. STATEMENTS**

1. Statement letter of code conformance to 2007 and 2010 FBC issued by W. W. Schaefer Engineering & Consulting, P.A., dated 11/08/2011, signed and sealed by Warren W. Schaefer, P.E.
2. No financial interest letter issued by W. W. Schaefer Engineering & Consulting, P.A., dated 11/08/2011, signed and sealed by Warren W. Schaefer, P.E.

**"Submitted under NOA # 09-1015.09"**

3. Code compliance letters issued by Hurricane Test Laboratory, Inc., dated 09/29/2003 and 09/30/2009, signed and sealed by Vinu J. Abraham, P.E.

  
01/13/2012

Carlos M. Utrera, P.E.  
Product Control Examiner  
NOA No. 11-1117.10

Expiration Date: January 06, 2015  
Approval Date: January 19, 2012

PANEL LOAD TABLE  
(WITH SIDE CLIPS)

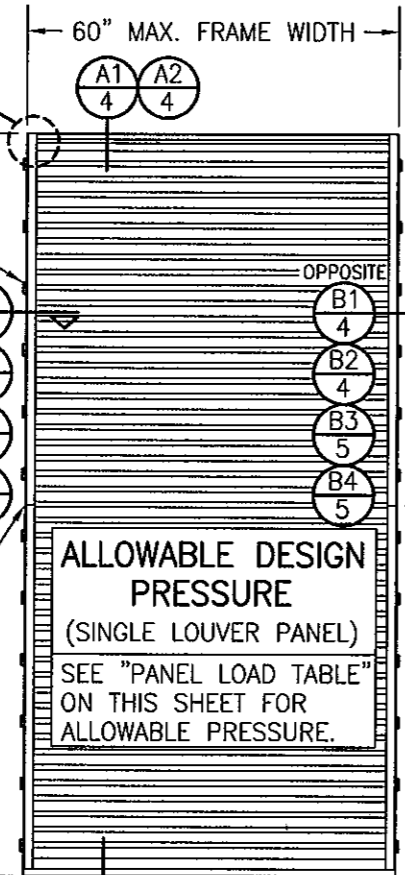
PANEL WIDTH (IN.)	(1) CLIP SPACING (IN.)	ALLOWABLE PRESSURE (+/- PSF)
36	8	120
	13	104
	18	75
42	8	120
	13	89
	18	64
48	8	120
	13	78
	18	56
54	8	120
	13	69
	18	50
60	8	120
	13	62
	18	45

(1) CLIP SPACING WITHIN SLEEVE MOUNTED LOUVERS MAY NOT VARY AND SHALL ALWAYS BE 8".

SEE CORNER CONSTRUCTION DESCRIPTIONS ON THIS SHEET

UNLIMITED JAMB CLIP AT SIDES ONLY (NOT APPLICABLE WHEN LOUVER IS SLEEVE MOUNTED)

JAMB SPLICE WHEN REQUIRED FOR STACKING (SEE SECTION A1/4 FOR DETAIL). SPLICE LOCATION TO BE BETWEEN BLADES.



EXTERIOR ELEVATION:  
SINGLE LOUVER PANEL

(ARCHITECTURAL & NON-ARCHITECTURAL)

SCALE: 1/2" = 1'-0"

SEE TABLE ON THIS SHEET FOR REQUIRED CLIP SPACING

SEE TABLE ON THIS SHEET FOR REQUIRED CLIP SPACING

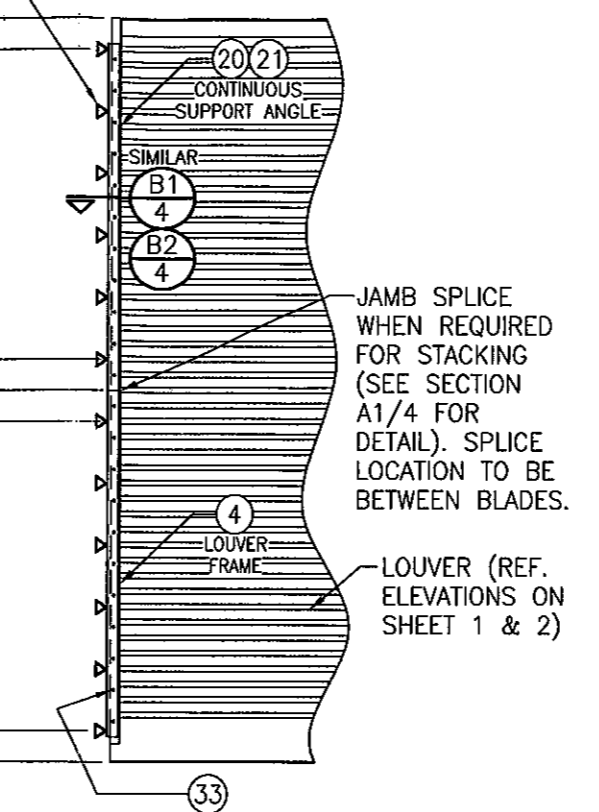
SEE TABLE ON THIS SHEET FOR REQUIRED CLIP SPACING

SEE TABLE ON THIS SHEET FOR REQUIRED ANCHOR SPACING

SEE TABLE ON THIS SHEET FOR REQUIRED ANCHOR SPACING

SEE TABLE ON THIS SHEET FOR REQUIRED ANCHOR SPACING

JAMB ANCHORS TO SUBSTRATE PER ANCHOR REQUIREMENTS TABLE ON SHEET 1. SEE ANCHOR SPACING TABLE ON THIS SHEET FOR SPACING & END DISTANCE.



SUPPORT ANGLE TO LOUVER FRAME CONNECTION SCREW. SEE ANCHOR SPACING TABLE ON THIS SHEET FOR SPACING & END DISTANCE.

INTERIOR ELEVATION:  
(OPTIONAL SIDE JAMB INSTALLATION WITH CONTINUOUS SIDE ANGLES)

SCALE: 1/2" = 1'-0"  
(FOR DETAIL NOT SHOWN, SEE OTHER ELEVATIONS)

PANEL ANCHOR SPACING/PRESSURE TABLE  
(WITH CONTINUOUS SIDE SUPPORT ANGLE)

PANEL WIDTH (IN.)	ANGLE TO SUBSTRATE ANCHORS		ANGLE TO LOUVER FRAME SCREWS		ALLOWABLE PRESSURE (+/- PSF)
	SPACING (IN.)	END DIST. (IN.)	SPACING (IN.)	END DIST. (IN.)	
36	8	4	4	2	120
	13	7 1/2	7 1/2	3 3/4	104
	18	9	9	4 1/2	75
42	8	4	4	2	120
	13	7 1/2	7 1/2	3 3/4	89
	18	9	9	4 1/2	64
48	8	4	4	2	120
	13	7 1/2	7 1/2	3 3/4	78
	18	9	9	4 1/2	56
54	8	4	4	2	120
	13	7 1/2	7 1/2	3 3/4	69
	18	9	9	4 1/2	50
60	8	4	4	2	120
	13	7 1/2	7 1/2	3 3/4	62
	18	9	9	4 1/2	45

NOTE: SINGLE LOUVER PANELS MAY BE STACKED/SPLICED VERTICALLY OR THE LOUVER PANEL MAY RUN VERTICALLY TO INFINITE HEIGHT PROVIDING OPENING IS PROPERLY DESIGNED BY OTHERS TO SUPPORT THE LOUVER PANELS.

SLEEVE SPlicing NOTE FOR SLEEVE MOUNTED LOUVERS:

SLEEVE MAY BE SPLICED ALONG HORIZONTAL OR VERTICAL RUNS PROVIDING SPLICE DOES NOT OCCUR WITHIN 12" OF ANY VERTICAL MULLION CENTERLINE.

CORNER & BLADE END CONSTRUCTION:

FRAME HEAD: HORIZONTAL MEMBER IS SQUARE CUT, BUTTED TO VERTICAL MEMBERS & FASTENED WITH TWO(2) NO. 7 X 1 1/4" SMS HEX HEAD SCREWS INTO THE HORIZONTAL MEMBERS SCREW SPLINES.

FRAME SILL: VERTICAL MEMBERS ARE ANGLE CUT, BUTTED TO HORIZONTAL MEMBER & FASTENED WITH TWO(2) NO. 7 X 1 1/4" SMS SCREWS INTO THE VERTICAL MEMBERS SCREW SPLINES.

BLADE END: HORIZONTAL BLADES ARE SQUARE CUT, BUTTED TO VERTICAL MEMBERS & FASTENED WITH TWO(2) NO. 7 OR NO. 8 X 1 1/4" SMS SCREWS INTO THE BLADE SCREW SPLINES.

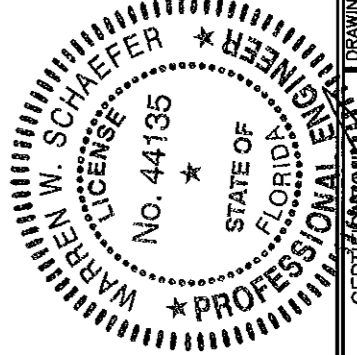
GENERAL NOTES:

- THESE LOUVER SYSTEMS HAVE BEEN TESTED, ANALYZED & APPROVED FOR DESIGN PRESSURES NOT TO EXCEED THOSE SHOWN IN THE "ALLOWABLE DESIGN PRESSURE TABLE(S)".
- OPENINGS, BUCKING & BUCKING FASTENERS MUST BE PROPERLY DESIGNED & INSTALLED TO TRANSFER WIND LOADS TO THE STRUCTURE. IT SHALL BE THE RESPONSIBILITY OF THE PERMIT HOLDER TO VERIFY THE STRUCTURAL INTEGRITY OF THE EXISTING STRUCTURE TO SUPPORT THE LOADS SUPERIMPOSED BY THE LOUVERS.
- ALL HARDWARE & FASTENERS SHALL BE IN ACCORDANCE WITH THESE DRAWINGS & SHALL NOT VARY UNLESS SPECIFICALLY MENTIONED ON THE DRAWINGS. SPECIFIED ANCHOR EMBED TO BASE MATERIAL SHALL BE BEYOND WALL FINISH OR STUCCO.
- THE DETAILS & SPECIFICATIONS SHOWN HEREIN REPRESENT THE PRODUCTS TESTED & PROPOSED FOR IMPACT, CYCLIC & UNIFORM STATIC AIR PRESSURE TESTING IN CONFORMANCE WITH THE FLORIDA BUILDING CODE PROTOCOLS TAS-201, 202 & 203 FOR LARGE MISSILE IMPACT LOUVERS.
- THESE LOUVER SYSTEMS HAVE BEEN DESIGNED IN ACCORDANCE WITH AND MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (FBC) INCLUDING HIGH VELOCITY HURRICANE ZONES (HVHZ).
- IMPACT SHUTTERS ARE NOT REQUIRED WITH THESE LOUVER SYSTEMS.
- ALL ANCHORS SECURING LOUVER FRAME TO PRESSURE TREATED BUCKS OR WOOD FRAMING SHALL BE CAPABLE OF RESISTING CORROSION CAUSED BY THE PRESSURE TREATING CHEMICALS IN THE WOOD.
- DETERMINE THE POSITIVE & NEGATIVE DESIGN LOADS TO USE WHEN REFERENCING THESE DOCUMENTS IN ACCORDANCE WITH THE GOVERNING CODE AND GOVERNING WIND VELOCITY. FOR WIND LOAD CALCULATIONS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, A DIRECTIONALITY FACTOR OF  $K_d = 0.85$  MAY BE APPLIED PER THE ASCE-7 STANDARD.
- NO INCREASE IN ALLOWABLE STRESS HAS BEEN USED IN THE CERTIFICATION OF THIS PRODUCT. WIND LOAD DURATION FACTOR  $C_d = 1.6$  WAS USED FOR WOOD SCREW ANALYSIS ONLY.
- MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF FLORIDA BUILDING CODE CHAPTER 20.
- EACH LOUVER ASSEMBLY SHALL BE PERMANENTLY LABELED AS FOLLOWS:  
ARROW UNITED INDUSTRIES  
WYALUSING, PA  
MIAMI-DADE COUNTY PRODUCT CONTROL APPROVED
- THESE LOUVERS ARE NOT TESTED FOR WATER INFILTRATION RESISTANCE, THEREFORE THE LOUVERS ARE TO BE INSTALLED IN A LOCATION WHERE THE ROOM BEHIND THE LOUVER IS DESIGNED TO DRAIN WATER PENETRATING INTO THE ROOM, AND THE ROOM WILL HOUSE WATER RESISTANT/WATER PROOF EQUIPMENT, COMPONENTS OR SUPPLIES.
- MULLED PANELS MAY BE HORIZONTALLY INSTALLED TO AN UNLIMITED NUMBER. VERTICAL STACKING OF MULLED PANELS MAY OCCUR PROVIDING A STRUCTURAL SUPPORT IS DESIGNED & INSTALLED BY OTHERS TO SUPPORT ALL LOADS TRANSFERRED FROM THE LOUVER ASSEMBLY (SINGLE PANELS MAY RUN TO UNLIMITED HEIGHT PER ELEVATION IF NO MULLION EXISTS).

ANCHOR REQUIREMENTS TABLE

OPENING TYPE (SUBSTRATE)	FRAME CLIP TO OPENING FASTENER TYPE	MINIMUM EMBED	MINIMUM EDGE DIST.
JAMB & NON-REINFORCED MULLION END CLIP ANCHORS			
MIN. 2X... WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 14 SMS OR WOOD SCREW	1 3/8"	3/4"
MIN. 16 GA. 33 KSI METAL STUD	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
(3) MIN. C-90 CMU	(1) 1/4" CONCRETE SCREW	1 1/4"	2"
MIN. 3000 PSI CONCRETE	(1) 1/4" CONCRETE SCREW	1 1/2"	2"
TUBE MULLION END CLIP ANCHORS			
MIN. 2X... WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 14 SMS OR WOOD SCREW	1 3/8"	3/4"
MIN. 16 GA. 33 KSI METAL STUD	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	1/4-14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
3000 PSI CONCRETE	(2) 1/2" WEDGE ANCHOR	3 1/2"	3"
(1) CONCRETE SCREWS SHALL BE ELCO ULTRACONS, ITW RAMSET/RED HEAD TAPCONS OR HILTI KWIK-CON II (HARDENED STEEL OR S.S.).			
(2) WEDGE ANCHORS SHALL BE HILTI STAINLESS STEEL KWIK BOLT 3			
(3) CMU IS APPLICABLE AT SIDES ONLY.			

PRODUCT REVISED  
as complying with the Florida Building Code  
Acceptance No 11-1117-10  
Expiration Date 01/06/2015  
By [Signature]  
Miami Dade Product Control



THESE DRAWINGS ARE APPLICABLE ONLY TO THE PRODUCT SPECIFIED. THEY MAY NOT BE USED FOR THE ASSEMBLY AND/OR INSTALLATION OF ANY OTHER PRODUCT NOR MAY THEY BE USED FOR RATIONAL AND/OR LOCAL APPROVAL OF ANY PRODUCT NOT PRODUCED BY THE MANUFACTURER STATED ON THESE DRAWINGS.

DRAWN BY: W.R.M.  
PLOT: 1-24  
DATE: 07/23/09

CHECKED BY: W.W.S.

DATE: 07/23/09

REVISION DESCRIPTION & DATE

NO. 1

DATE: 11/08/11

W.R.M.

MANUFACTURERS ADDRESS

ARROW UNITED INDUSTRIES  
450 RIVERSIDE DRIVE  
WYALUSING, PA 18853  
570-746-1888

MANUFACTURER

CONSULTANTS

W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424

DRAWING TITLE

EA-52 IMPACT LOUVER SYSTEM

NOV 08 2011

WARREN W. SCHAEFER P.E. NO. 44135

DRAWING NO. 1685

REV. A

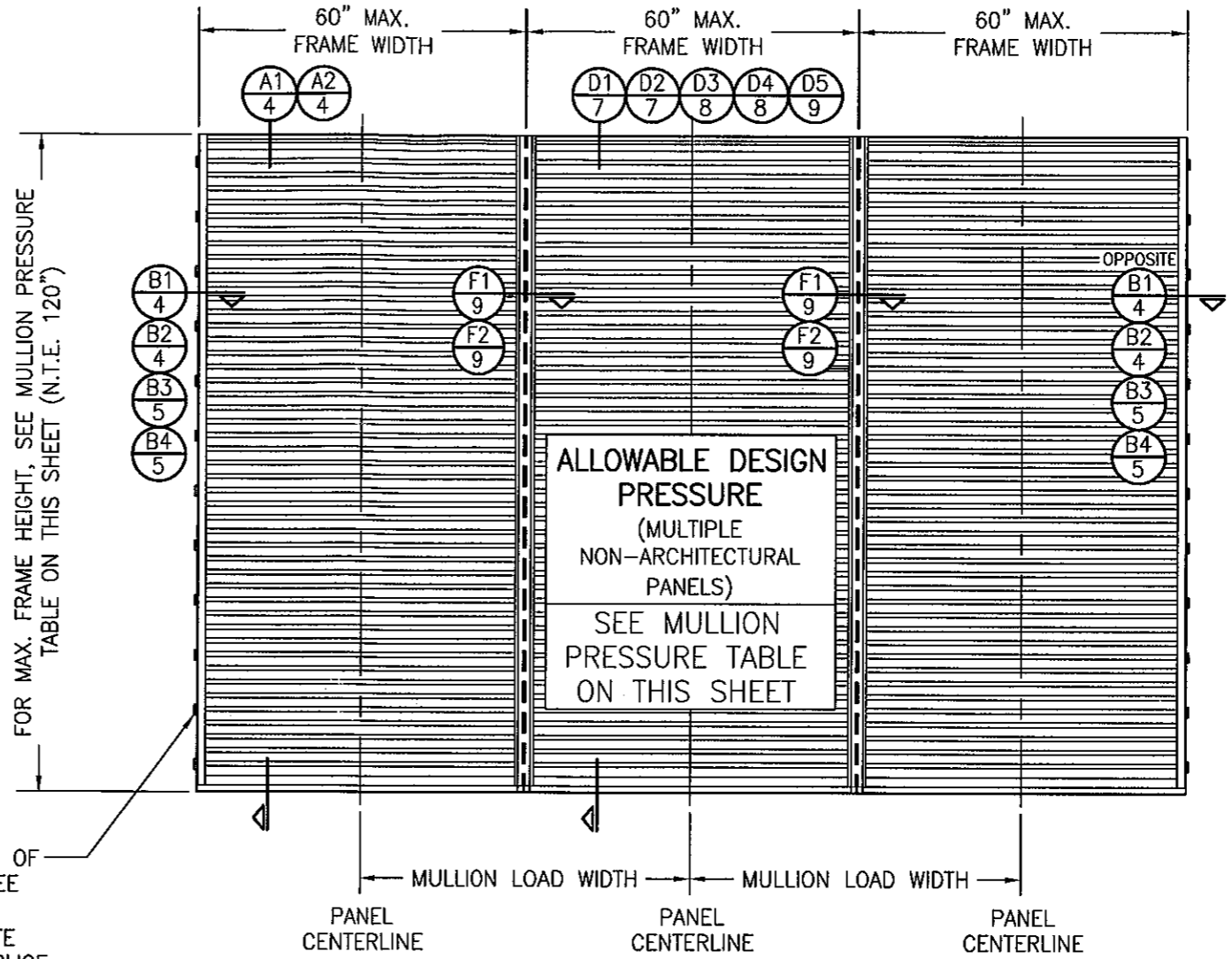
SHEET NO. 1 OF 10

MULLION ALLOWABLE DESIGN PRESSURE  
(NON-ARCHITECTURAL LOUVERS)

MAXIMUM MULLION SPAN (IN.)	MAXIMUM LOAD WIDTH (IN.)	ALLOWABLE PRESSURE (+/- PSF)		
		WITH NO TUBE MULLION	WITH 4"x3"x3/16" TUBE MULLION	WITH 4"x3"x1/4" TUBE MULLION
120	60	30.6	46.1	61.4
	54	34.0	51.2	68.3
	48	38.3	57.6	76.8
	42	43.7	65.8	87.8
	36	51.0	76.8	102.4
	30	61.2	92.2	120.0
	24	76.5	115.2	120.0
	18	102.0	120.0	120.0
108	60	42.0	63.2	84.3
	54	46.6	70.2	93.6
	48	52.5	79.0	105.3
	42	60.0	90.3	120.0
	36	70.0	105.3	120.0
	30	84.0	120.0	120.0
	24	104.9	120.0	120.0
	18	120.0	120.0	120.0
96	60	56.3	90.0	120.0
	54	62.5	100.0	120.0
	48	70.3	112.5	120.0
	42	80.4	120.0	120.0
	36	93.8	120.0	120.0
	30	112.5	120.0	120.0
	24	120.0	120.0	120.0
	18	120.0	120.0	120.0
84	60	64.3	120.0	120.0
	54	71.4	120.0	120.0
	48	80.4	120.0	120.0
	42	91.8	120.0	120.0
	36	107.1	120.0	120.0
	30	120.0	120.0	120.0
72	60	75.0	120.0	120.0
	54	83.3	120.0	120.0
	48	93.8	120.0	120.0
	42	107.1	120.0	120.0
	36	120.0	120.0	120.0
60	60	90.0	120.0	120.0
	54	100.0	120.0	120.0
	48	112.5	120.0	120.0
	42	120.0	120.0	120.0
48	60	112.5	120.0	120.0
	54	120.0	120.0	120.0
42	60	120.0	120.0	120.0

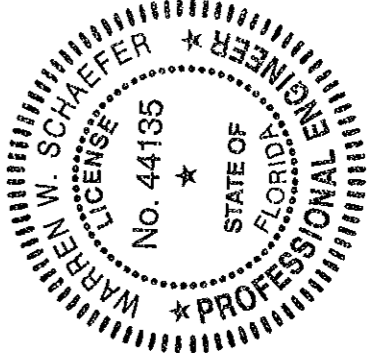
NOTES:  
1. SEE ELEVATION FOR DIMENSIONING OF LOAD WIDTH.  
2. ALLOWABLE UNIT PRESSURE SHALL BE THE LESSER OF THE PRESSURE SHOWN IN THIS TABLE & THAT SPECIFIED FOR THE INDIVIDUAL LOUVER PANEL.

FOR LOCATIONS OF JAMB CLIPS, SEE SINGLE PANEL ELEVATION (NOTE THAT FRAME SPLICE DOES NOT APPLY TO MULLED UNITS)



EXTERIOR ELEVATION:  
MULTIPLE LOUVER PANELS  
(NON-ARCHITECTURAL)  
SCALE: 1/2" = 1'-0"  
(3 PANEL UNIT SHOWN; MORE THAN 3 PANELS MAY BE MULLED/STACKED HORIZONTALLY)

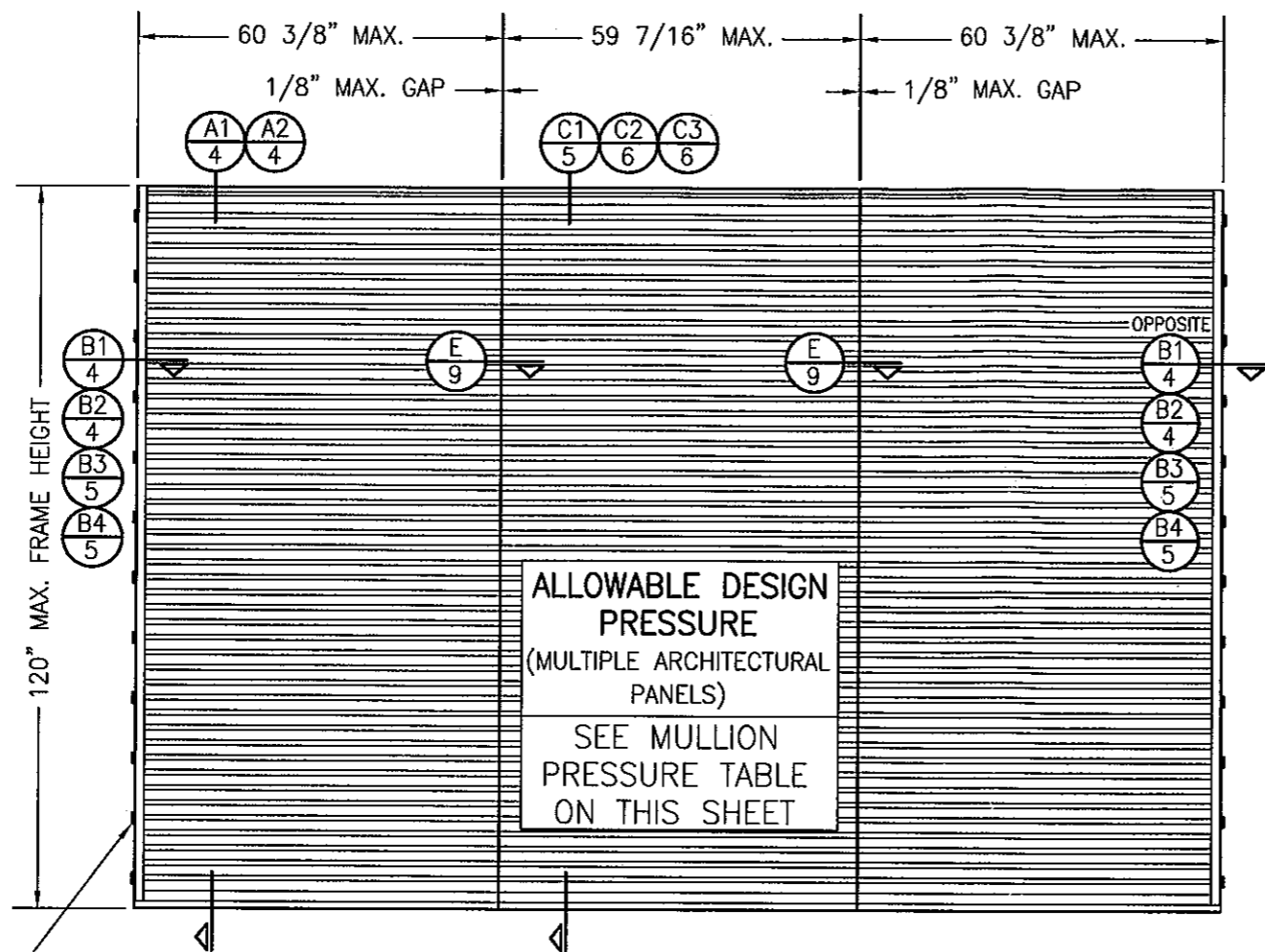
PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 11-1117.10  
Expiration Date 01/06/2015  
By: [Signature]  
Miami Dade Product Control



DRAWN BY: W.R.M.	CHECKED BY: W.W.S.
PLOT: 1-24	DATE: 07/23/09
DATE	BY
REVISION DESCRIPTION	NO.
DRAWING TITLE EA-52 IMPACT LOUVER SYSTEM	
MANUFACTURER ARROW UNITED INDUSTRIES 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888	
CONSULTANTS W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809) 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
CERTIFICATION	NOV 08 2011 WARREN W. SCHAEFER, P.E. P.E. NO. 44135
DRAWING NO. 1685	REV. A
SHEET NO. 2 OF 10	

MULLION ALLOWABLE DESIGN PRESSURE (ARCHITECTURAL LOUVERS)		
MAXIMUM MULLION SPAN (IN.)	MAXIMUM LOAD WIDTH (IN.)	ALLOWABLE PRESSURE (+/- PSF)
120	60	61.4
	54	68.3
	48	76.8
	42	87.8
	36	102.4
108	30	120.0
	60	84.3
	54	93.6
	48	105.3
96	42	120.0
	60	120.0

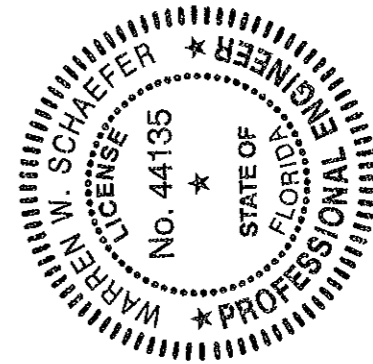
NOTES:  
1. SEE ELEVATION FOR DIMENSIONING OF LOAD WIDTH.  
2. ALLOWABLE UNIT PRESSURE SHALL BE THE LESSER OF THE PRESSURE SHOWN IN THIS TABLE & THAT SPECIFIED FOR THE INDIVIDUAL LOUVER PANEL.



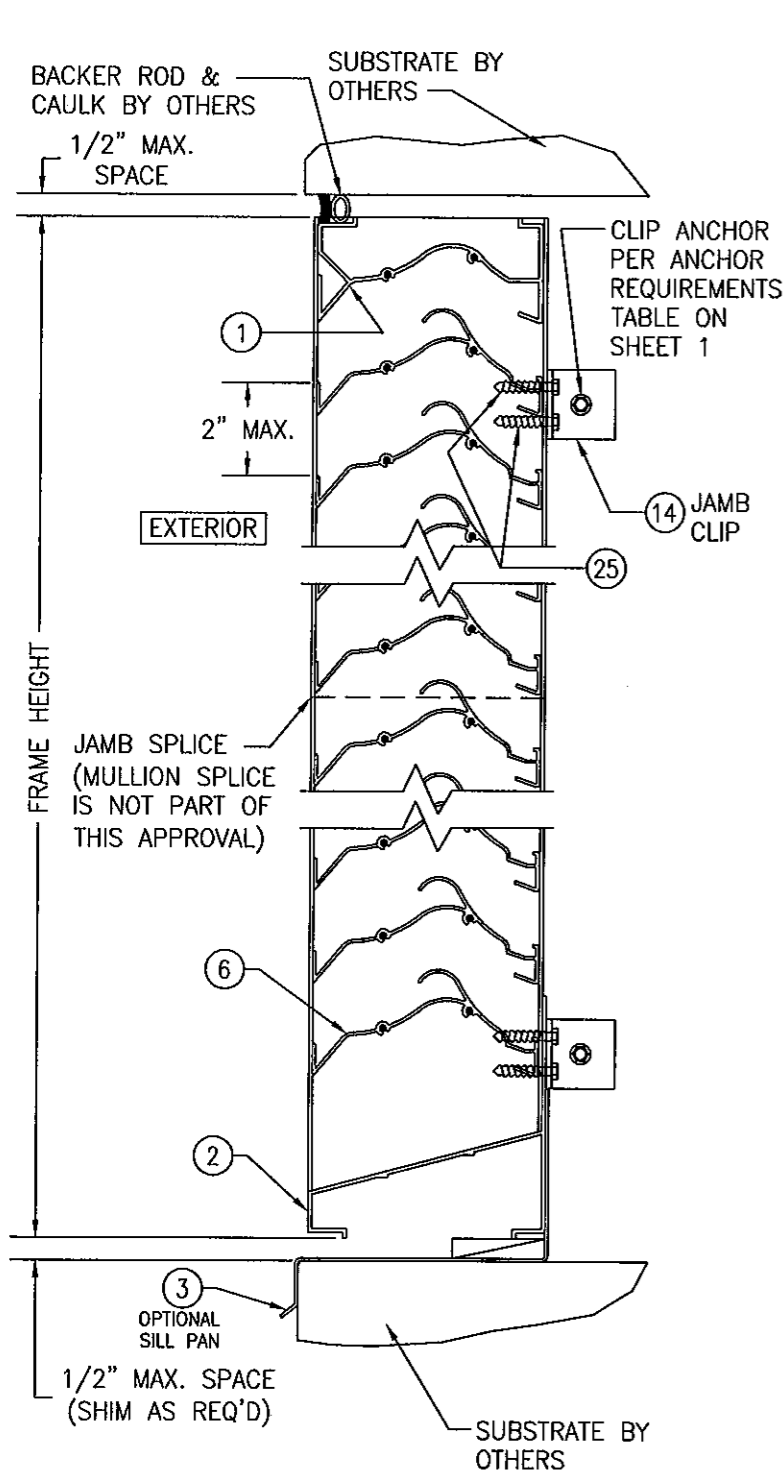
FOR LOCATIONS OF JAMB CLIPS, SEE SINGLE PANEL ELEVATION (NOTE THAT FRAME SPLICE DOES NOT APPLY TO MULLED UNITS)

EXTERIOR ELEVATION:  
MULTIPLE LOUVER PANELS  
(ARCHITECTURAL)  
SCALE: 1/2" = 1'-0"  
(3 PANEL UNIT SHOWN; MORE THAN 3 PANELS MAY BE MULLED/STACKED HORIZONTALLY)

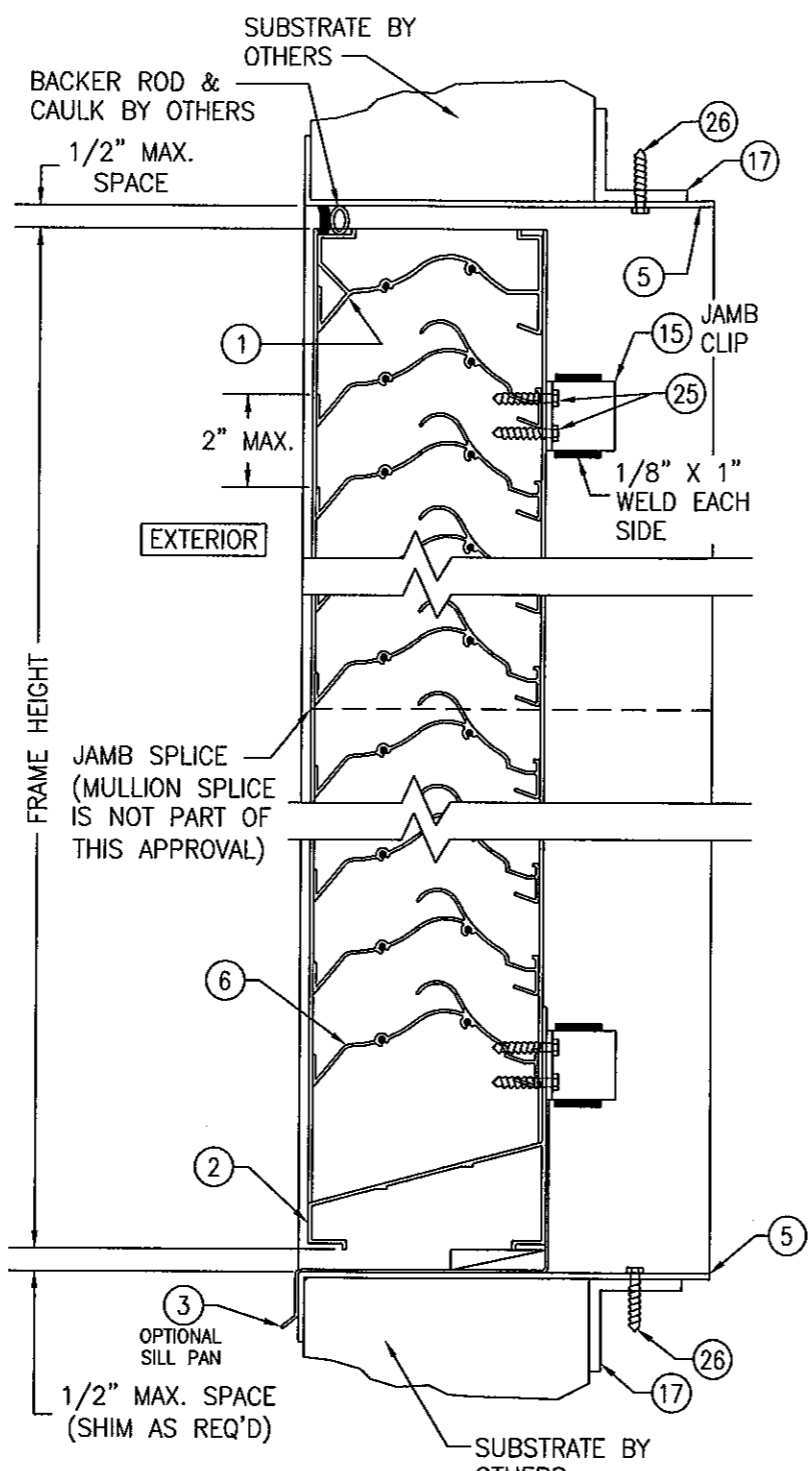
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as complying with the Florida  
Building Code  
Acceptance No 11-1117.10  
Expiration Date 01/06/2015  
By [Signature]  
Miami Dade Product Control



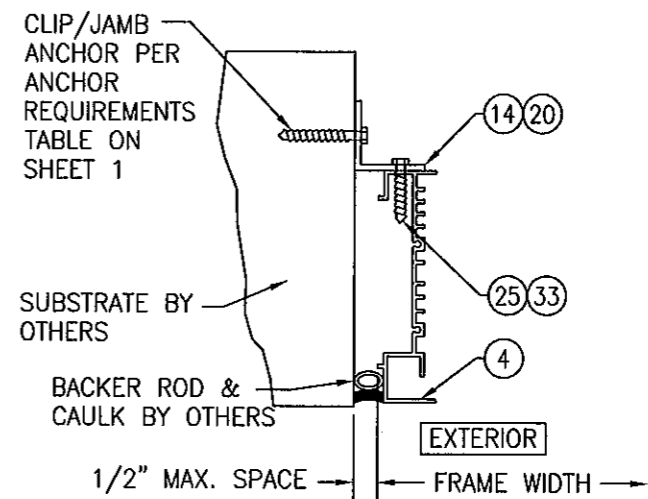
DRAWN BY: W.R.M.		CHECKED BY: W.W.S.	
PLOT: 1-24		DATE: 07/23/09	
NO.	DATE	BY	REVISION DESCRIPTION
DRAWING TITLE EA-52 IMPACT LOUVER SYSTEM			
CONSULTANTS W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809) 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424		MANUFACTURER ARROW UNITED INDUSTRIES 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888	
CERTIFICATION NOV 08 2011 WARREN W. SCHAEFER, P.E. P.E. NO. 44135			
DRAWING NO. 1685		REV. A	
SHEET NO. 3 OF 10			



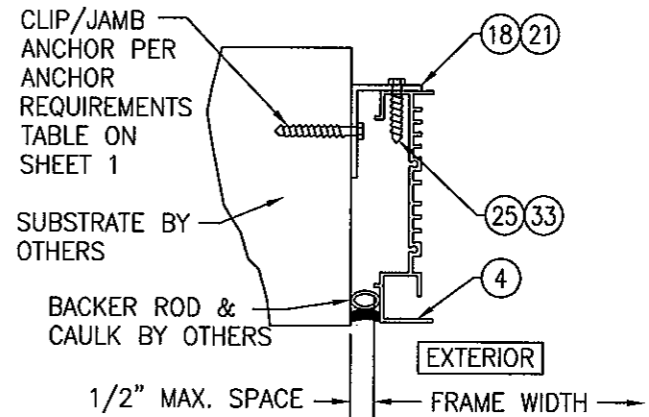
SECTION A1  
SCALE: 1/2 FULL



SECTION A2  
SCALE: 1/2 FULL  
(SLEEVE MOUNT)

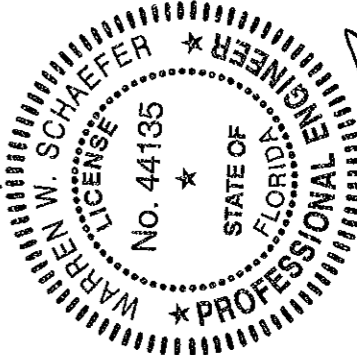


SECTION B1  
SCALE: 1/2 FULL  
(NO SLEEVE & CLIPS TURNED OUT)



SECTION B2  
SCALE: 1/2 FULL  
(NO SLEEVE & CLIPS TURNED IN)

PRODUCT REVISED  
as complying with the Florida  
Building Code  
Acceptance No. 11-1117-10  
Expiration Date 21/06/2015  
By Miami Dade Product Control



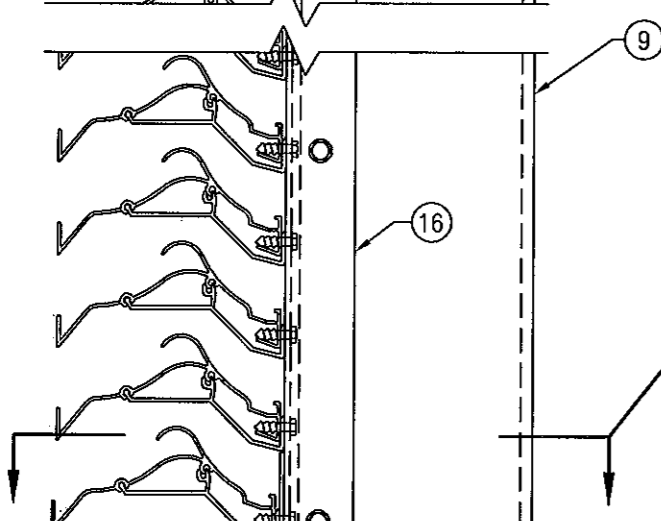
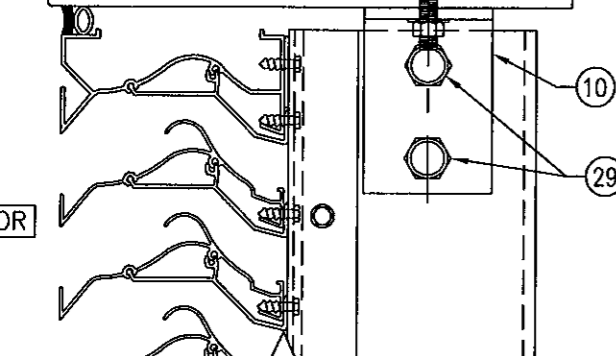
DRAWN BY: W.R.M.	CHECKED BY: W.W.S.
PLOT: 1=4	DATE: 07/23/09
NO.	REVISION DESCRIPTION
DATE	BY
<p>DRAWING TITLE: EA-52 IMPACT LOUVER SYSTEM</p> <p>MANUFACTURER: ARROW UNITED INDUSTRIES 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888</p> <p>CONSULTANTS: W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809) 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424</p>	
CERTIFICATION	<p>NOV 08 2011</p> <p>WARREN W. SCHAEFER, P.E. P.E. NO. 44135</p>
DRAWING NO. 1685	REV. A
SHEET NO. 4 OF 10	

DRAWING NO.	REV
1685	A
SHEET NO.	
5	OF 10

EXTERIOR

SUBSTRATE BY OTHERS

TUBE MULLION CLIP ANCHOR PER ANCHOR REQUIREMENTS TABLE ON SHEET 1 (1 PER CLIP)

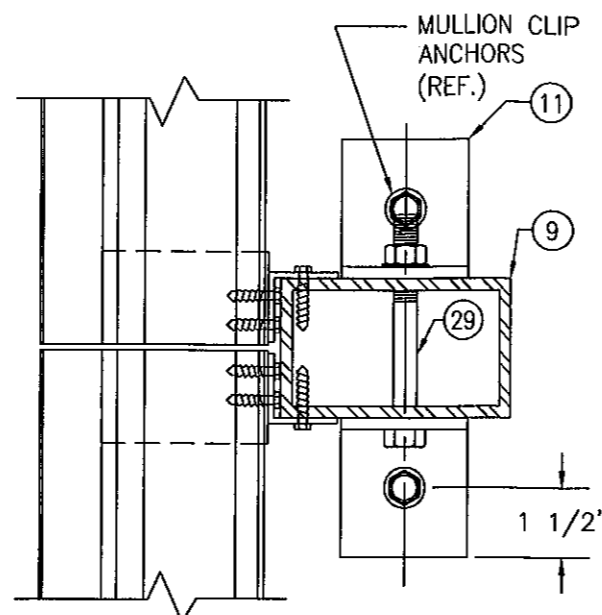


SUBSTRATE BY OTHERS

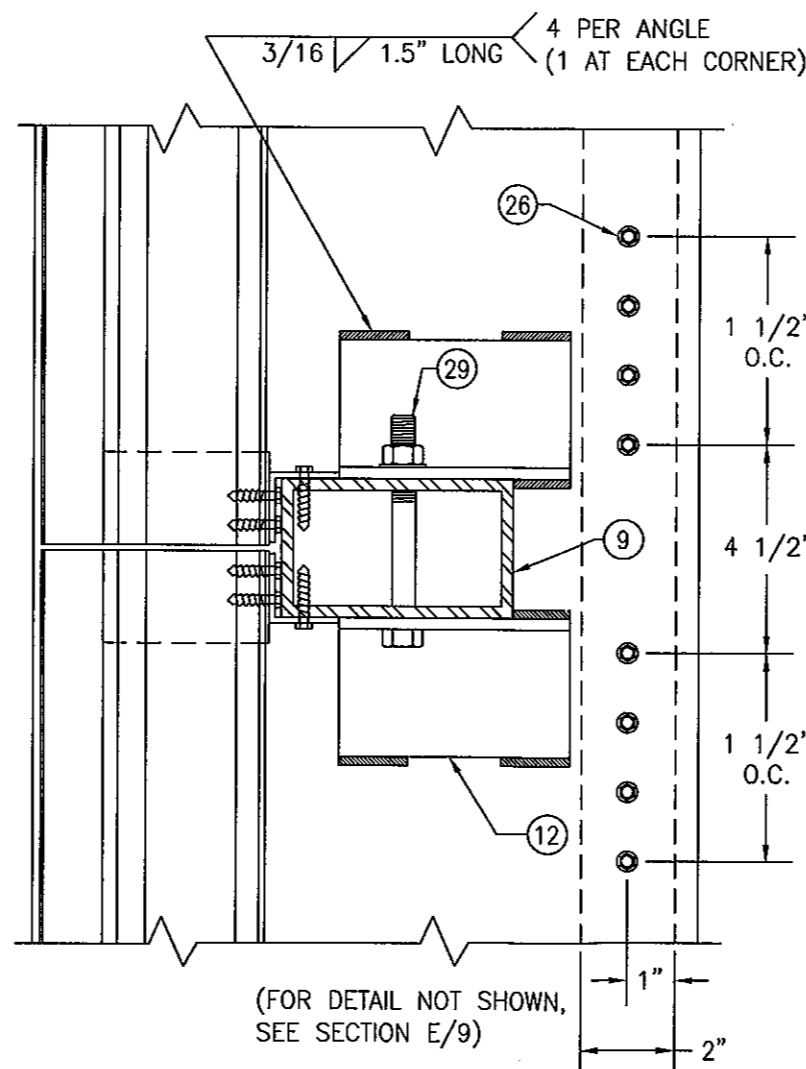
TUBE MULLION CLIP ANCHOR PER ANCHOR REQUIREMENTS TABLE ON SHEET 1 (1 PER CLIP)

SECTION C2  
SCALE: 1/2 FULL 6

(ARCHITECTURAL LOUVER WITHOUT PERIMETER SLEEVE; INSTALLED INTO CONCRETE SUBSTRATE)  
(FOR DETAIL NOT SHOWN, SEE SECTION C1/5)



(FOR DETAIL NOT SHOWN, SEE SECTION E/9)



(FOR DETAIL NOT SHOWN, SEE SECTION E/9)

POSITION OF THE SLEEVE PERIMETER SUPPORT ANGLE VARIES WITH SUBSTRATE THICKNESS & MAY BE POSITIONED UNDER THE MULLION END SUPPORT ANGLE. WHEN THIS OCCURS, THE SLEEVE ATTACHMENT SCREWS SHALL MOVE WITH THE ANGLE & MAY BE POSITIONED TO RUN THROUGH THE MULLION END ANGLE AND SLEEVE.

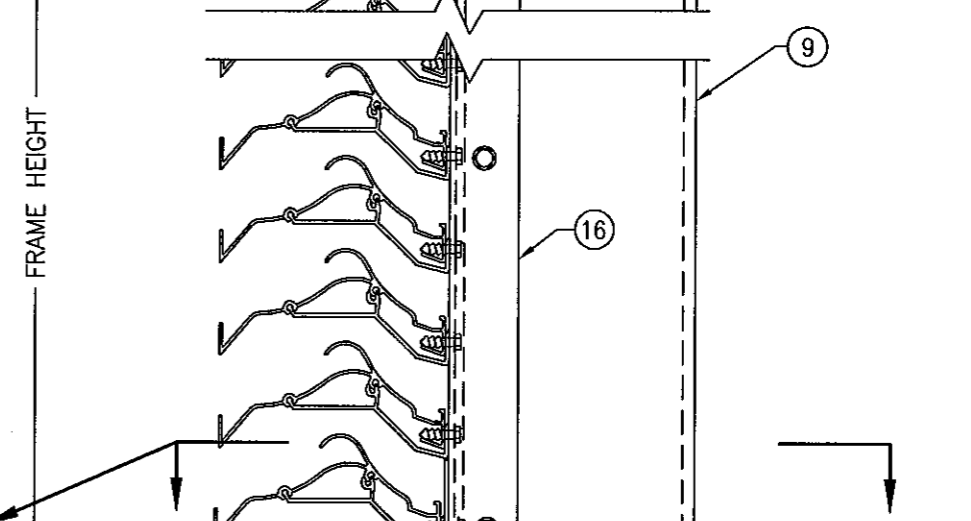
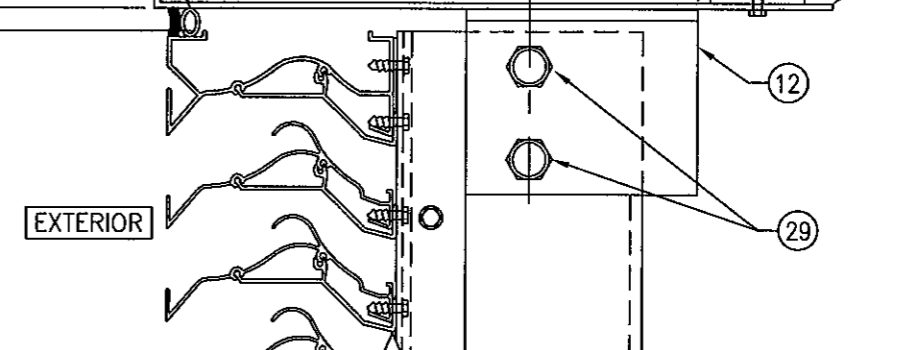
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BACKER ROD & CAULK BY OTHERS

SUBSTRATE BY OTHERS

1/2" MAX. SPACE

1/4" MAX.



FRAME HEIGHT

1/2" MAX. SPACE (SHIM AS REQ'D)

SUBSTRATE BY OTHERS

SECTION C3  
SCALE: 1/2 FULL 6

(ARCHITECTURAL LOUVER WITH PERIMETER SLEEVE; INSTALLED INTO ALL SUBSTRATES)  
(FOR DETAIL NOT SHOWN, SEE SECTION C1/5)

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DATE		BY	

MANUFACTURER  
ARROW UNITED INDUSTRIES  
450 RIVERSIDE DRIVE  
WYALUSING, PA 18853  
570-746-1888

CONSULTANTS  
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. (CA 6809)  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE 561-744-3424

DRAWING TITLE	EA-52 IMPACT LOUVER SYSTEM
CERTIFICATION NO.	44116
DATE	NOV 08 2011
BY	W. W. SCHAEFER
REV.	A
SHEET NO.	6 OF 10

SUBSTRATE BY OTHERS

BACKER ROD & CAULK BY OTHERS

1/2" MAX. SPACE

MULLION CLIP ANCHORS PER ANCHOR REQUIREMENTS TABLE ON SHEET 1 (8 PER CLIP)

1

13

30

EXTERIOR

FRAME HEIGHT

2" MAX.

6

30

2

13

3

OPTIONAL SILL PAN

1/2" MAX. SPACE (SHIM AS REQ'D)

SUBSTRATE BY OTHERS

MULLION CLIP ANCHORS PER ANCHOR REQUIREMENTS TABLE ON SHEET 1 (8 PER CLIP)

SECTION D1

SCALE: 1/2 FULL

(NON-ARCHITECTURAL LOUVER WITHOUT PERIMETER SLEEVE & WITHOUT TUBE MULLION; INSTALLED INTO ALL SUBSTRATES)

3/4"

13

3/4"

3/4" MIN.

7 EQ. SPACES @ 1 1/2" O.C.

12"

19

4

3"

MULLION CLIP ANCHORS (REF.)

30

3/8"

13

2"

3/4"

7 EQ. SPACES @ 1 1/2" O.C.

7/8"

2"

1"

19

12"

4

WELDS (REF.)

7 EQ. SPACES AT 1 1/2" O.C.

26

1"

3"

1"

SUBSTRATE BY OTHERS

BACKER ROD & CAULK BY OTHERS

1/2" MAX. SPACE

26

17

5

13

30

FRAME HEIGHT

3/16" 2"

AT ENDS & MIDDLE; EACH EDGE OF ANGLE

5

26

17

SUBSTRATE BY OTHERS

3

OPTIONAL SILL PAN

1/2" MAX. SPACE (SHIM AS REQ'D)

SECTION D2

SCALE: 1/2 FULL

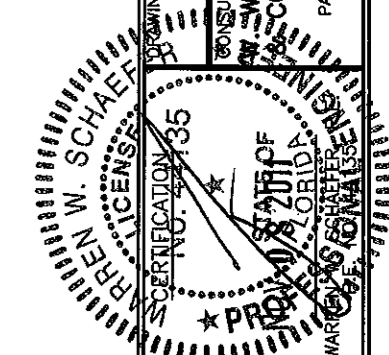
(NON-ARCHITECTURAL LOUVER WITH PERIMETER SLEEVE & WITHOUT TUBE MULLION; INSTALLED INTO ALL SUBSTRATES)

(FOR DETAIL NOT SHOWN, SEE SECTION D1/7)

POSITION OF THE SLEEVE PERIMETER SUPPORT ANGLE VARIES WITH SUBSTRATE THICKNESS & MAY BE POSITIONED UNDER THE MULLION END SUPPORT ANGLE. WHEN THIS OCCURS, THE SLEEVE ATTACHMENT SCREWS SHALL MOVE WITH THE ANGLE & MAY BE POSITIONED TO RUN THROUGH THE MULLION END ANGLE AND SLEEVE.

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NOV 08 2011

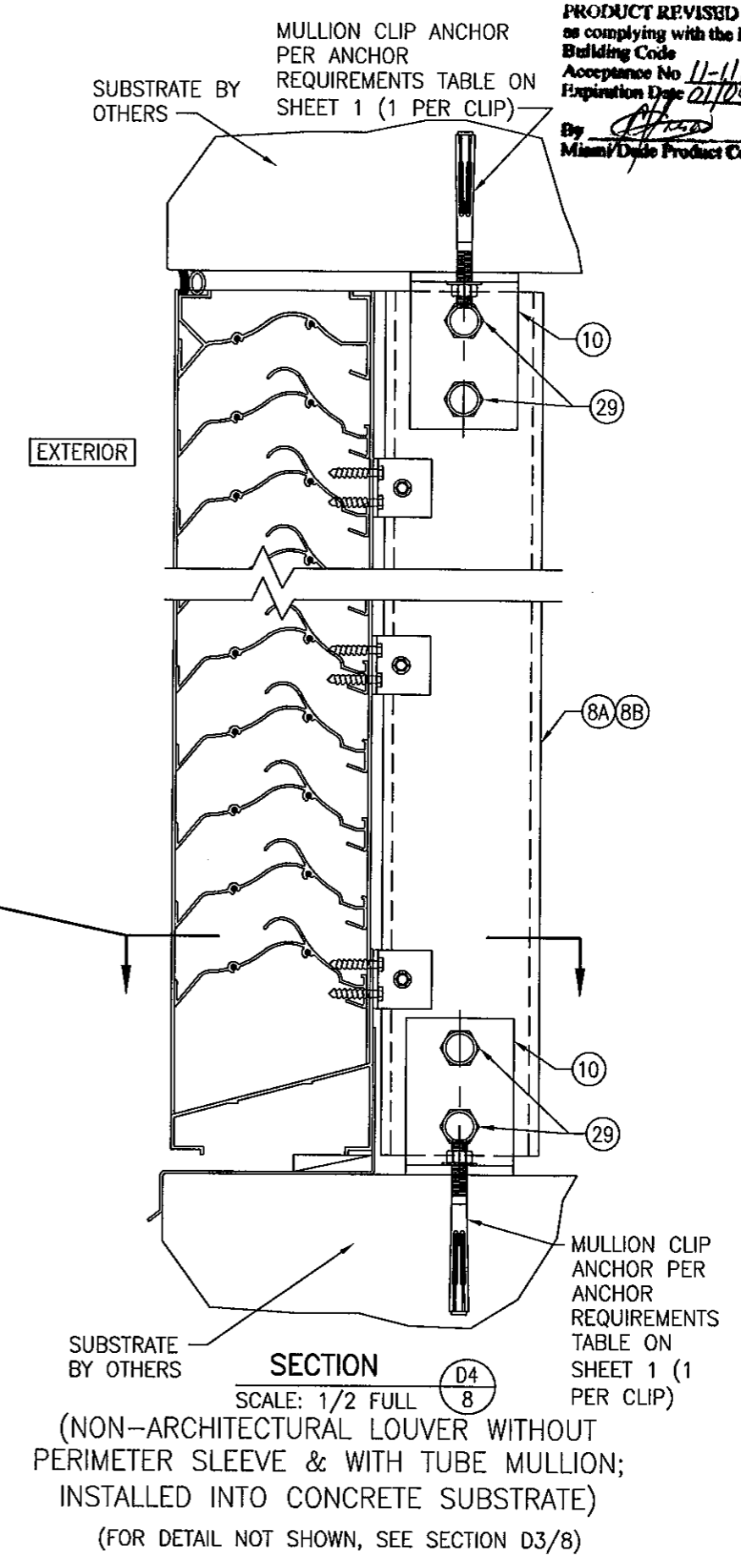
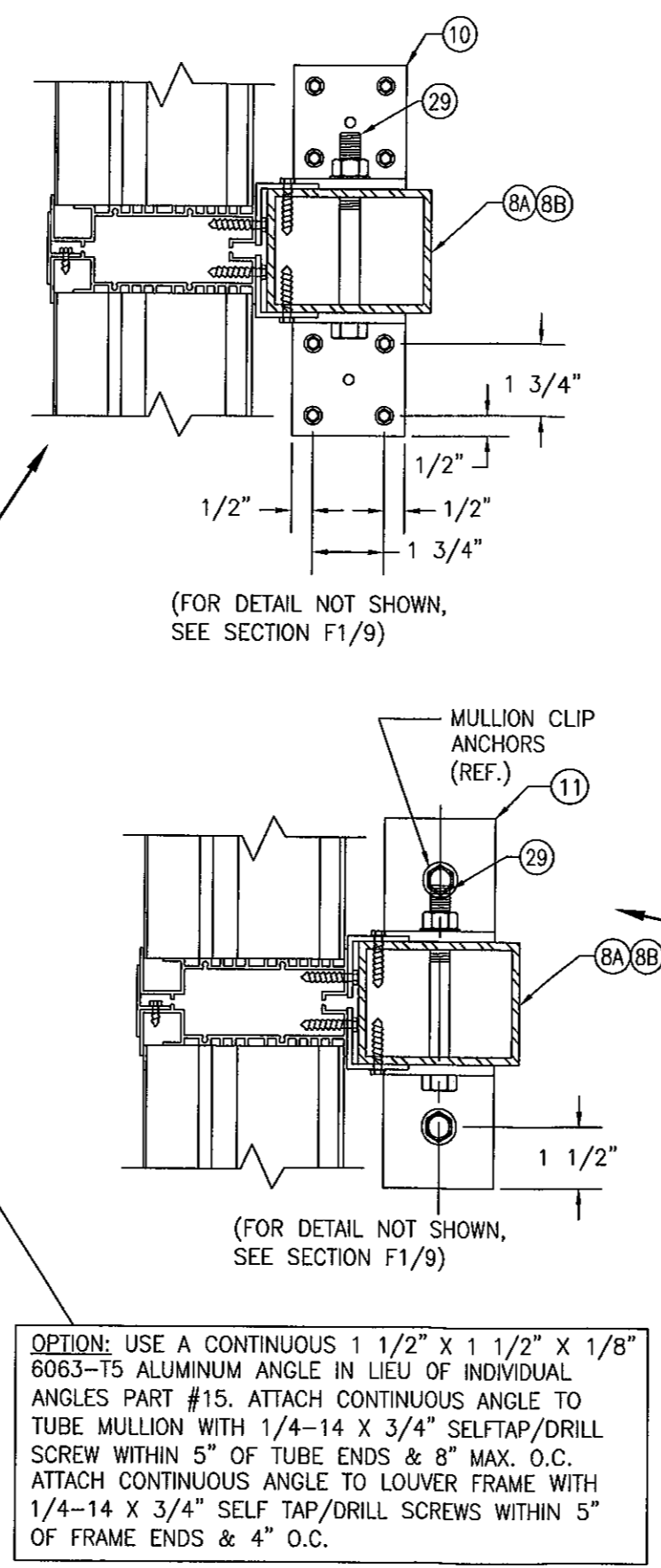
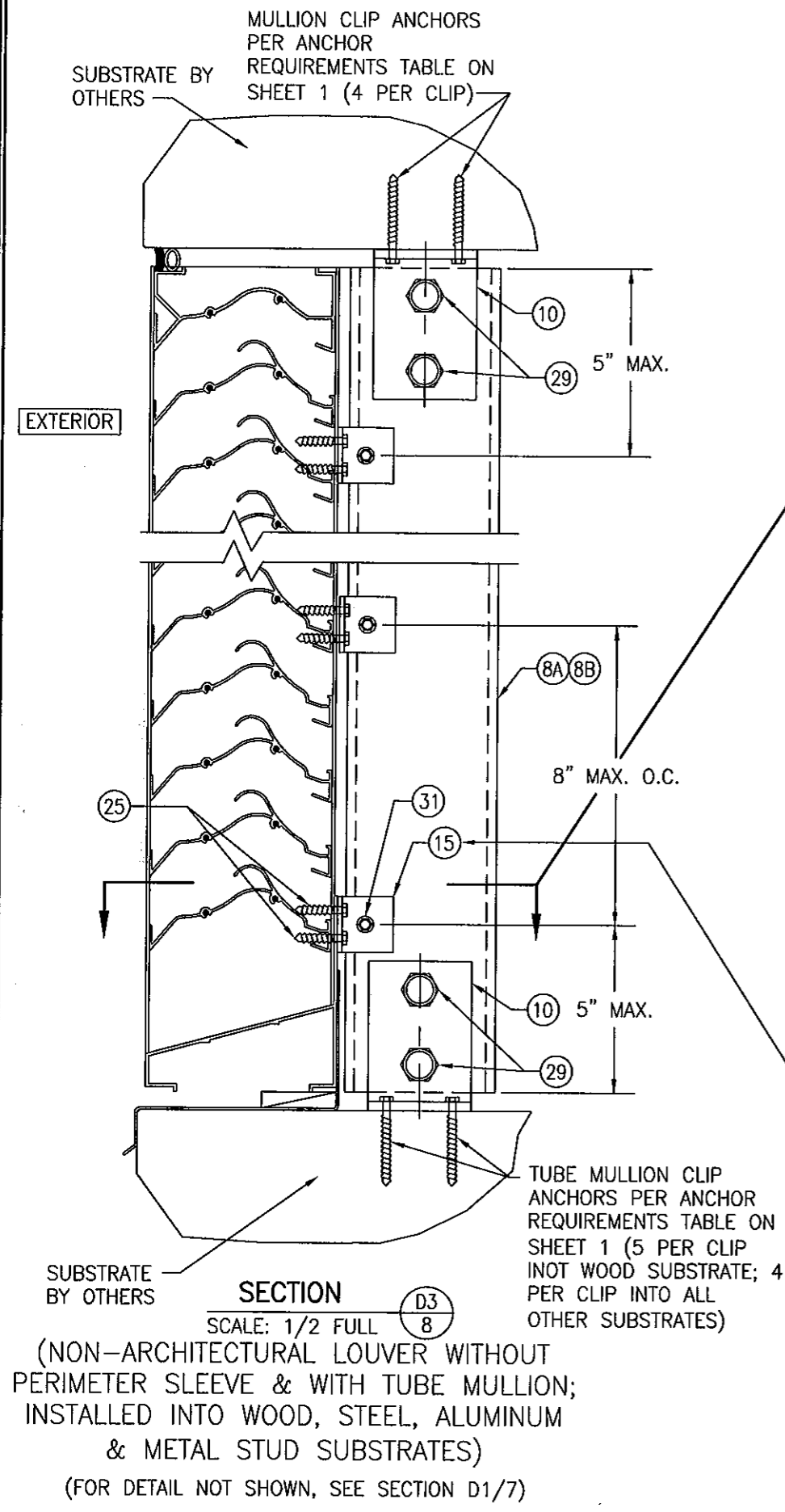


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PLOT:	1=4	DATE:	07/23/09
NO.		REVISION DESCRIPTION	
DATE		BY	

MANUFACTURER  
ARROW UNITED INDUSTRIES  
450 RIVERSIDE DRIVE  
WYALUSING, PA 18853  
570-746-1888

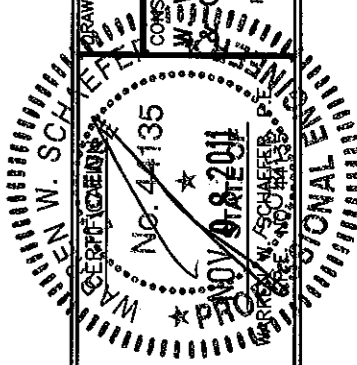
CONSULTANTS  
W. SCHAEFER ENGINEERING  
P.A. (CA 6809)  
7480 150TH COURT NORTH  
PALM BEACH GARDENS, FL 33418  
PHONE: 561-744-3424

DRAWING NO. 1685  
SHEET NO. 7 OF 10  
REV. A

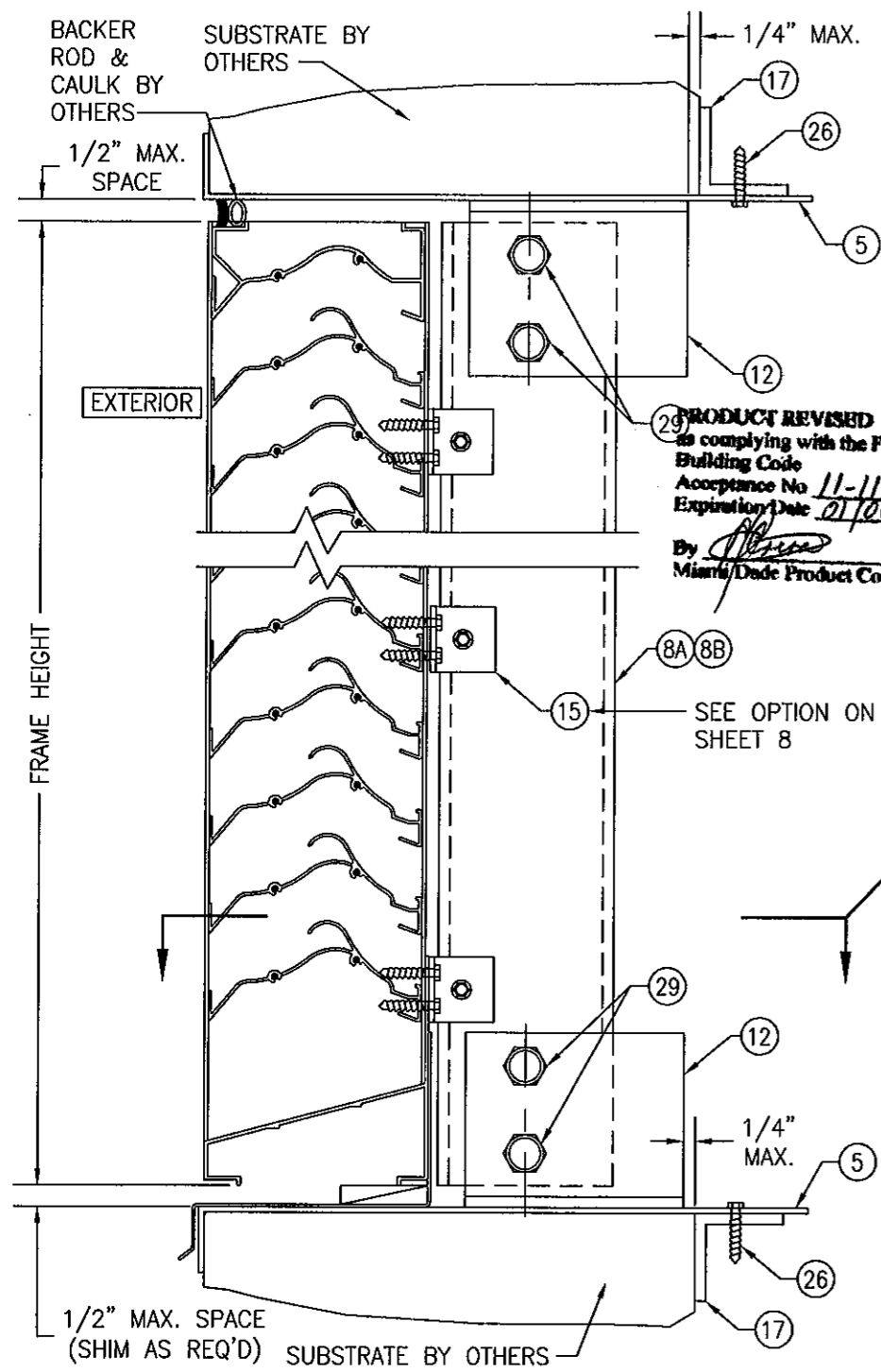


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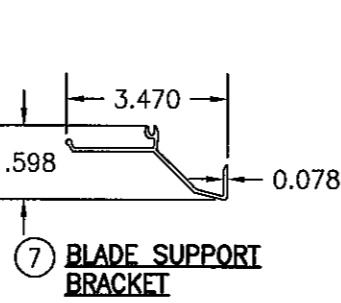
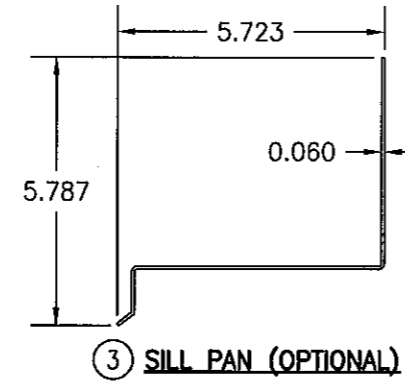
NOV 08 2011



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PLOT: 1=4	DATE: 07/23/09
DATE	BY
REVISION DESCRIPTION	NO.
MANUFACTURER <b>ARROW UNITED INDUSTRIES</b> 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888	
CONSULTANTS <b>W.S. SCHAEFER ENGINEERING</b> <b>&amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
DRAWING NO.	REV.
1685	A
SHEET NO.	8 OF 10



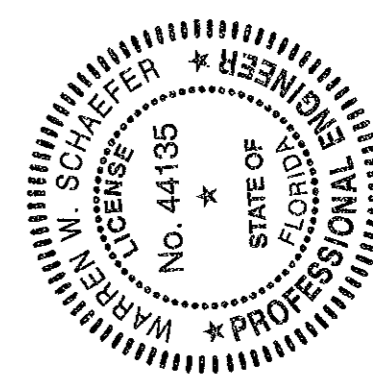
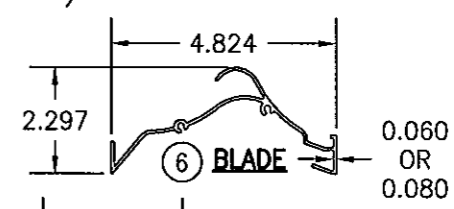
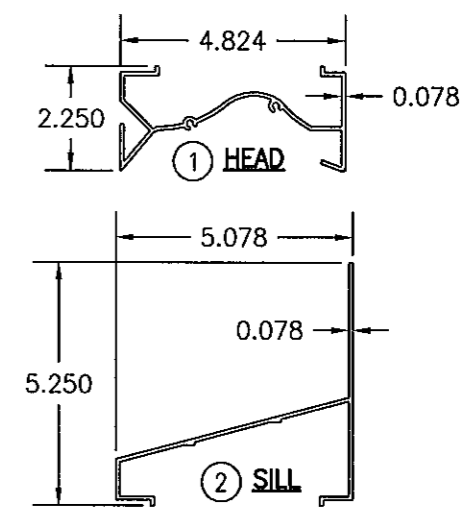
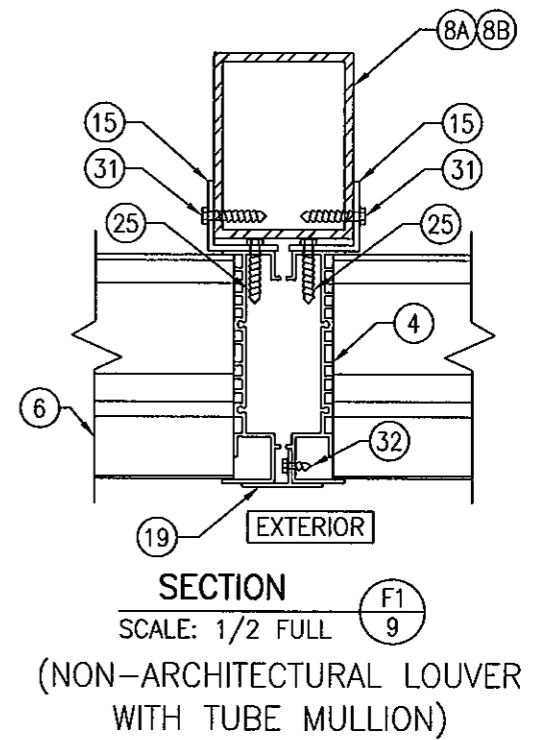
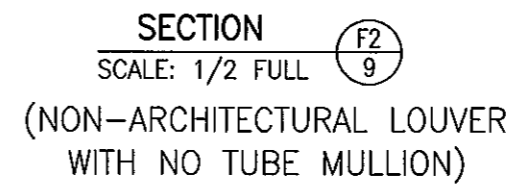
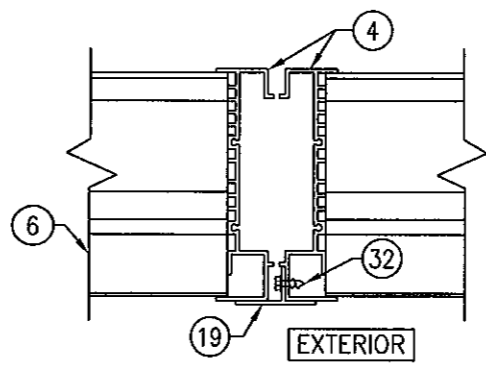
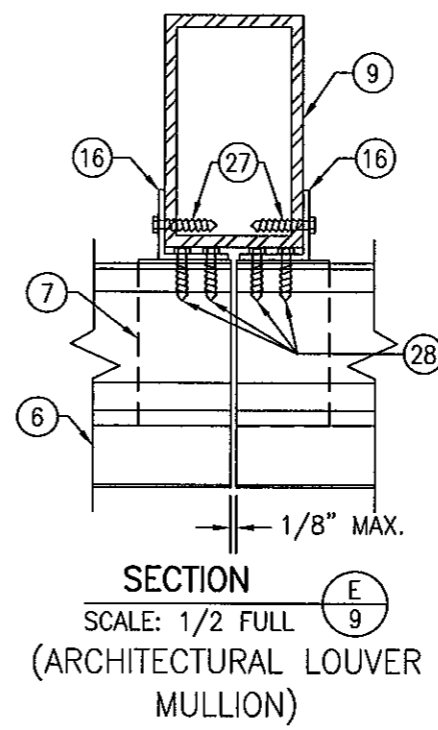
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**8A) TUBE MULLION (USED WITH NON-ARCHITECTURAL LOUVERS)**

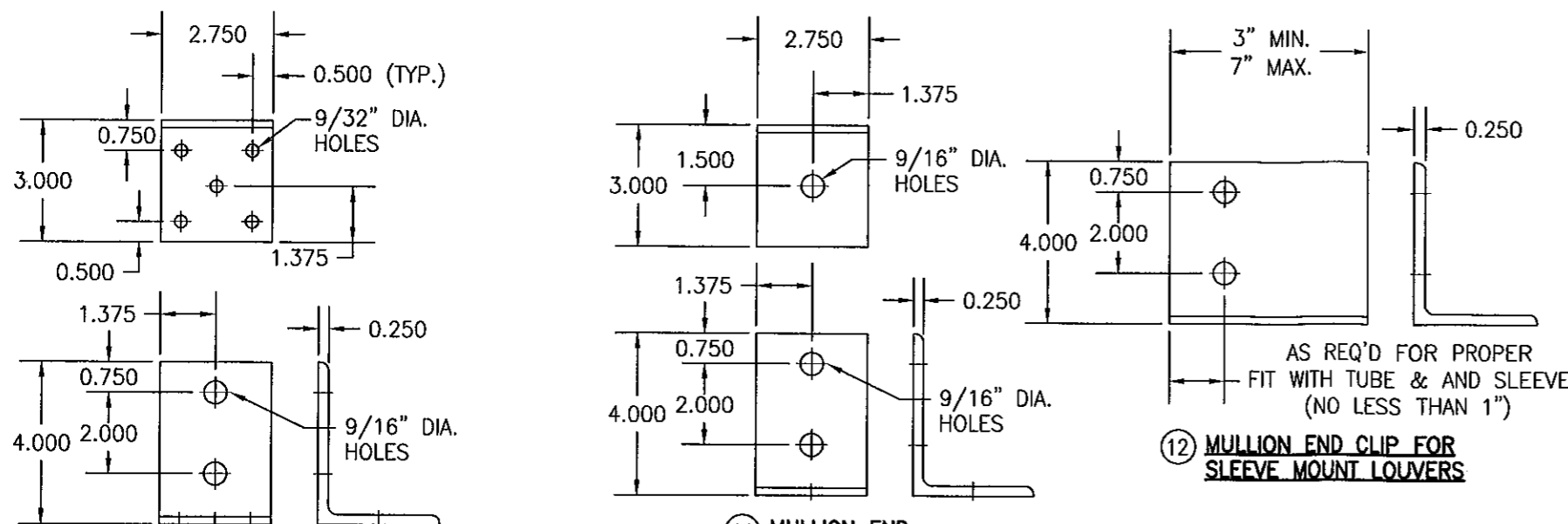
**8B) TUBE MULLION (USED WITH NON-ARCHITECTURAL LOUVERS)**

**9) TUBE MULLION (USED WITH ARCHITECTURAL LOUVERS)**



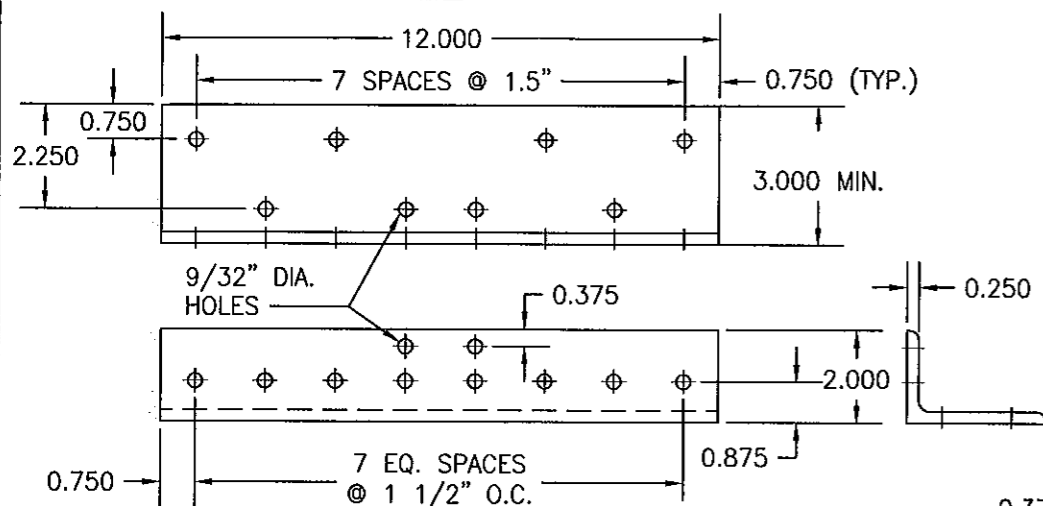
POSITION OF THE SLEEVE PERIMETER SUPPORT ANGLE VARIES WITH SUBSTRATE THICKNESS & MAY BE POSITIONED UNDER THE MULLION END SUPPORT ANGLE. WHEN THIS OCCURS, THE SLEEVE ANGLE ATTACHMENT SCREWS SHALL MOVE WITH THE ANGLE & MAY BE POSITIONED TO RUN THROUGH THE MULLION END ANGLE AND SLEEVE.

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PLOT: 1=4	DATE: 07/23/09
DATE	BY
REVISION DESCRIPTION	NO.
<b>EA-52 IMPACT LOUVER SYSTEM</b> MANUFACTURER <b>ARROW UNITED INDUSTRIES</b> 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888 CONSULTANTS <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424	
CERTIFICATION	NOV 08 2011 WARREN W. SCHAEFER, P.E. P.E. NO. 44135
DRAWING NO. 1685	REV. A
SHEET NO. 9	OF 10

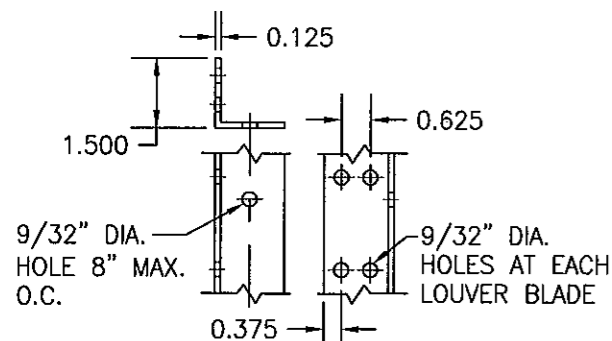


⑩ **MULLION END  
INSTALLATION CLIP**

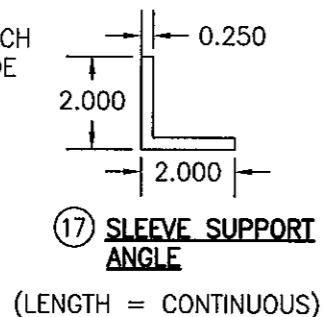
⑪ **MULLION END  
INSTALLATION CLIP**



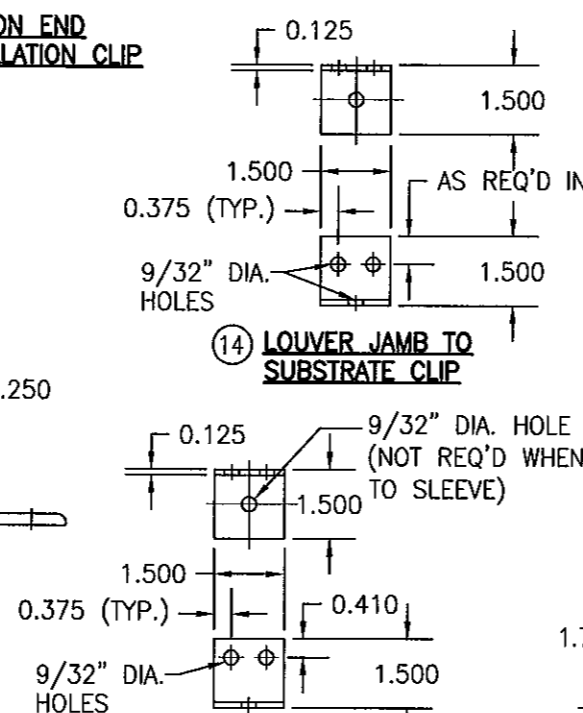
⑬ **MULLION END INSTALLATION CLIP**



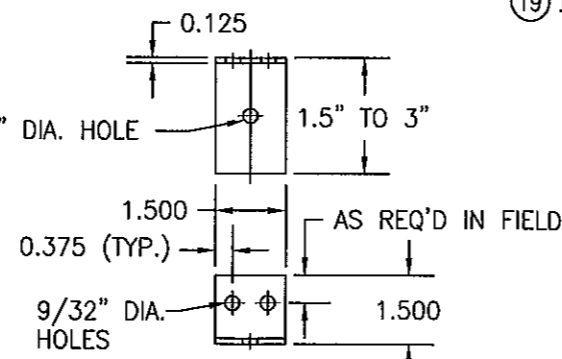
⑯ **TUBE MULLION TO  
LOUVER BLADE ANGLE  
(ARCHITECTURAL LOUVER)**  
(LENGTH = CONTINUOUS)



⑰ **SLEEVE SUPPORT  
ANGLE**  
(LENGTH = CONTINUOUS)



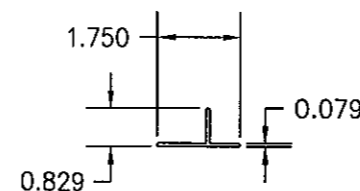
⑮ **SLEEVE OR TUBE  
MULLION TO LOUVER  
JAMB CLIP**



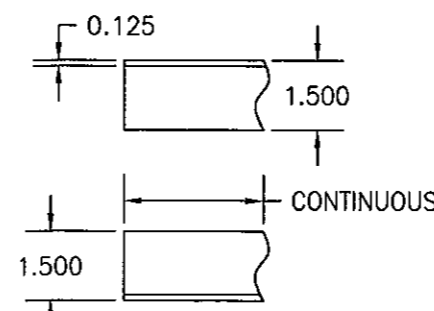
⑱ **LOUVER JAMB TO  
SUBSTRATE CLIP**  
1.5\"/>

AS REQ'D FOR PROPER  
FIT WITH TUBE & AND SLEEVE  
(NO LESS THAN 1\")

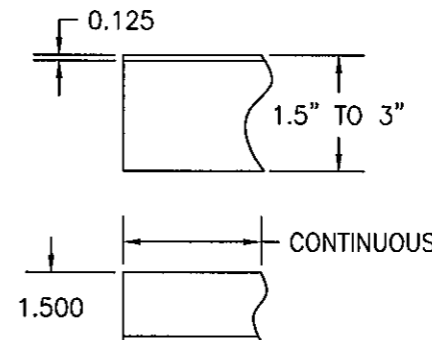
⑫ **MULLION END CLIP FOR  
SLEEVE MOUNT LOUVERS**



⑲ **MULLION COVER**



⑳ **CONTINUOUS SUPPORT  
ANGLE**

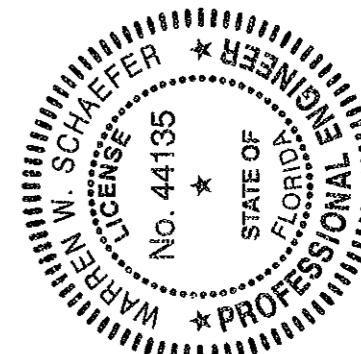


㉑ **CONTINUOUS  
SUPPORT ANGLE**  
1.5\"/>

ITEM #	ITEM DESCRIPTION	MANUFACTURER/NOTES
<b>PARTS</b>		
1	HEAD	6063-T6 ALUMINUM
2	SILL	6063-T6 ALUMINUM
3	SILL PAN	6063-T5 ALUMINUM
4	JAMB	6063-T6 ALUMINUM
5	SLEEVE	5052-H32 ALUMINUM
6	BLADE	6063-T6 ALUMINUM
7	BLADE SUPPORT BRACKET	6063-T6 ALUMINUM
8A	TUBE MULLION (USED WITH NON-ARCHITECTURAL LOUVERS)	6063-T6 OR 6061-T6 ALUMINUM
8B	TUBE MULLION (USED WITH NON-ARCHITECTURAL LOUVERS)	6063-T6 OR 6061-T6 ALUMINUM
9	TUBE MULLION (USED WITH ARCHITECTURAL LOUVERS)	6063-T6 OR 6061-T6 ALUMINUM
10	MULLION END INSTALLATION CLIP	6061-T6 ALUMINUM
11	MULLION END INSTALLATION CLIP	6061-T6 ALUMINUM
12	MULLION END CLIP FOR SLEEVE MOUNT LOUVERS	6061-T6 ALUMINUM
13	MULLION END INSTALLATION CLIP	6061-T6 ALUMINUM
14	LOUVER JAMB TO SUBSTRATE CLIP	6063-T5 ALUMINUM
15	SLEEVE OR TUBE MULLION TO LOUVER JAMB CLIP	6063-T5 ALUMINUM (WITHIN 4\"/>

MISC. FASTENERS		
25	1/4-14 X 3/4" SELF TAP/DRILL SCREW	2 PER CLIP
26	1/4-14 X 3/4" SELF TAP/DRILL SCREW	WITHIN 4" OF CORNERS & SLEEVE SPLICES & MAX. 8" O.C. (CLUSTERED AT MULLION ENDS PER DETAILS
27	1/4-14 X 3/4" SELF TAP/DRILL SCREW	8" O.C. PER SECTIONS
28	1/4-14 X 3/4" SELF TAP/DRILL SCREW	4 AT HEAD & 2 PER BLADE
29	1/2" X 5" A307 HEX HEAD PLATED STEEL OR S/STL NUT & BOLT	2 PER MULLION END
30	1/4-14 X 3/4" SELF TAP/DRILL SCREW	10 PER CLIP
31	1/4-14 X 3/4" SELF TAP/DRILL SCREW	1 PER CLIP
32	NO. 7 X 1/2" SMS SCREW	WITHIN 6" OF CORNERS & 24" MAX. O.C.
33	1/4-14 X 3/4" SELF TAP/DRILL SCREW	SEE ANCHOR SPACING/PRESSURE TABLE TABLE FOR SPACING REQUIREMENTS

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DATE	BY	REVISION DESCRIPTION	NO.
<b>EA-52 IMPACT LOUVER SYSTEM</b> MANUFACTURER: <b>ARROW UNITED INDUSTRIES</b> 450 RIVERSIDE DRIVE WYALUSING, PA 18853 570-746-1888 CONSULTANTS: <b>W. W. SCHAEFER ENGINEERING &amp; CONSULTING, P.A. (CA 6809)</b> 7480 150TH COURT NORTH PALM BEACH GARDENS, FL 33418 PHONE: 561-744-3424			
CERTIFICATION		NOV 08 2011 WARREN W. SCHAEFER, P.E. P.E. NO. 44135	
DRAWING NO. 1685		REV. A	
SHEET NO. 10		OF 10	